

**Notice of Allowability**

Application No.

10/613,824

Applicant(s)

EROZ ET AL.

Examiner

Mujtaba K. Chaudry

Art Unit

2133

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.


1. ☒ This communication is responsive to interview 11/2/2006.
2. ☒ The allowed claim(s) is/are 1,3-5,7-11,13-17 and 19-22.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 10/6/2006
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 11/8/2006
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

 11/8/06  
ALBERT BECADY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

**EXAMINER'S AMENDMENT**

An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Applicants' Attorney Georgann S. Grunebach on November 2, 2006.

Please amend the application as follows:

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**Please replace claim 1 with:**

1. A method for decoding a low density parity check (LDPC) coded signal, the method comprising:
  - retrieving edge values associated with a structured parity check matrix used to generate the LDPC coded signal, wherein the edge values specify relationship of bit nodes and check nodes, and are stored according to a predetermined scheme that permits concurrent retrieval of a set of the edge values, the predetermined scheme specifies contiguous physical memory locations for the set of edge values; and

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- outputting a decoded signal corresponding to the LDPC coded signal based on the retrieved edge values;
- wherein the set of edge values is retrieved in a single clock cycle of a processor coupled to the memory, and is adjacent to a group of M bit nodes or M check nodes, where M is the number of parallel processing engines.

**Please cancel claim 6.**

**Please replace claim 11 with:**

11. A decoder for decoding a low density parity check (LDPC) coded signal comprising:

- means for retrieving edge values associated with a structured parity check matrix used to generate the LDPC coded signal;
- memory for storing the edge values according to a predetermined scheme that permits concurrent retrieval of a set of the edge values, wherein the edge values specify relationship of bit nodes and check nodes, the predetermined scheme specifies contiguous physical memory locations for the set of edge values; and
- means for outputting a decoded signal corresponding to the LDPC coded signal based on the retrieved edge values;
- a processor coupled to the memory, wherein the set of edge values is retrieved in a single clock cycle of the processor and is adjacent to a group of M bit nodes or M check nodes, where M is the number of parallel processing engines.

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**Please cancel claim 18.**

**Please replace claim 19 with:**

19. A memory accessible by a low density parity check (LDPC) decoder for decoding a LDPC coded signal, comprising:
- a first portion storing a first group of edge values associated with a structured parity check matrix used to generate the LDPC coded signal, the first group of edges being connected to bit nodes of  $n$  degrees;
  - a second portion storing a second group of edge values associated with the structured parity check matrix used to generate the LDPC coded signal, the second group of edges being connected to bit nodes of greater than  $n$  degrees, wherein a set of edge values from the first group or the second group is retrieved to output a decoded signal; and
  - a processor coupled to the memory, wherein the set of edge values is retrieved in a single clock cycle of the processor and is adjacent to a group of  $M$  bit nodes or  $M$  check nodes, where  $M$  is the number of parallel processing engines.
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### REASONS FOR ALLOWANCE

Claims 1, 3-5, 7-11, 13-17 and 19-22 are allowed. The following is an Examiner's statement of reasons for allowance:

Independent claim 1 of the present application teaches a method for decoding a low density parity check (LDPC) coded signal, the method comprising: retrieving edge values associated with a structured parity check matrix used to generate the LDPC coded signal, wherein the edge values specify relationship of bit nodes and check nodes, and are stored according to a predetermined scheme that permits concurrent retrieval of a set of the edge values, the predetermined scheme specifies contiguous physical memory locations for the set of edge values; and outputting a decoded signal corresponding to the LDPC coded signal based on the retrieved edge values; wherein the set of edge values is retrieved in a single clock cycle of a processor coupled to the memory, and is adjacent to a group of  $M$  bit nodes or  $M$  check nodes, where  $M$  is the number of parallel processing engines. The foregoing limitations are not found in the prior arts of record. Particularly, none of the prior arts of record teach nor fairly suggest, *"...the predetermined scheme specifies contiguous physical memory locations for the set of edge values; and outputting a decoded signal corresponding to the LDPC coded signal based on the retrieved edge values; wherein the set of edge values is retrieved in a single clock cycle of a processor coupled to the memory, and is adjacent to a group of  $M$  bit nodes or  $M$  check nodes, where  $M$  is the number of parallel processing engines."*

Independent claims 11 and 19 include similar limitations of independent claim 1 and therefore are allowed for similar reasons.

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Dependent claims 3-5, 7-10, 13-17 and 20-22 depend from allowable independent claims 1, 11 and 19 and inherently include limitations therein and therefore are allowed as well.

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*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mujtaba K. Chaudry whose telephone number is 571-272-3817.

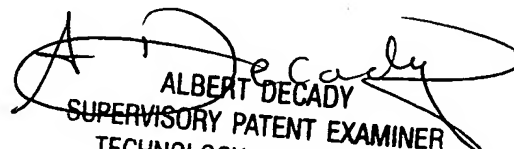
The examiner can normally be reached on Mon-Thur 9-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on 571-272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mujtaba Chaudry  
Art Unit 2133  
November 8, 2006



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